

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application Of:	)	Intra-Osseous Implant
	)	
Christiaan Michiel Ten Bruggenkate	)	
	)	Examiner: HeidiMarie Eide
Serial No.: 10/562,387	)	
	)	
Filed: May 11, 2006	)	Art Unit: 3732

**APPELLANT'S APPEAL BRIEF**

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

This Brief is in support of the Notice of Appeal filed on January 6, 2011. A Pre-Appeal Brief Request for Review was simultaneously filed therewith and a Notice of Panel Decision from Pre-Appeal Brief Review was mailed on February 22, 2011.

**REAL PARTY IN INTEREST**

The real party in interest is Ten Bruggenkate Kaakchirurgie B.V.

**RELATED APPEALS AND INTERFERENCES**

There are no related appeals and interferences.

**STATUS OF CLAIMS**

Claims 1, 3-6 and 8-17 are pending in the application, are rejected, and are at issue in this appeal. The claims are set forth in the Claims Appendix .

**STATUS OF AMENDMENTS**

No amendment was made subsequent to final rejection.

**SUMMARY OF CLAIMED SUBJECT MATTER**

Independent claim 1 is the only independent claim in the appeal. Claim 1 specifies an intra-osseous implant 10, see Fig. 2, for placement in bone of a human or animal body comprising at least one intra-osseous part 12 intended for placement in the bone tissue. See page 8, lines 2-7. The intra-osseous part 12 has an apical side 12b and a cervical side 12c. See Fig. 4a and page 10, lines 19-24.

The intra-osseous part 12 is provided on its circumferential surface 12a, with a screw thread 18 running in the direction of and ending at the apical end. See page 8, lines 8 and 9. A support part 15 is present at the cervical side of the intra-osseous part for supporting a prosthetic element. See page 8, lines 2-7.

The intra-osseous part is provided with multiple grooves 19a-19c extending in the longitudinal direction and over the entire length of the intra-osseous part, interrupting the screw thread into multiple interrupted screw thread parts 18a-18c. See page 8, lines 10-15. The multiple interrupted screw thread parts 18a-18c act as retention elements, see page 9, lines 1-4.

The retention elements allow the placement of the implant in the longitudinal direction into the bone tissue and prevent the removal of the implant in the opposite longitudinal direction out of the bone. See page 9, lines 9-15 and lines 27-31. The retention elements are provided with a profile exhibiting a shallow slope towards the apical side and a steep slope on the cervical side, see page 10, line 26 to page 11, line 2.

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

1. Whether claims 1, 3, 8-10, 12 and 14 are anticipated by Münch U.S. Patent No. 4,468,200?
2. Whether claims 4, 5 and 15 are obvious over Münch in view of Alvaro U.S. Patent No. 6,099,312?
3. Whether claim 6 is obvious over Münch in view of Misch et al. U.S. Patent No. 5,954,504 (Misch)?
4. Whether claims 11, 16 and 17 are obvious over Münch in view of Kanomi et al. U.S. Patent No. 5,921,774 (Kanomi)?
5. Whether claim 13 is obvious over Münch in view of Lonca U.S. Patent No. 4,722,688?

**ARGUMENT**

**Claims 1, 3, 8-10, and 12 and 14 Are Not Anticipated By Münch.**

In accordance with the invention, an implant device uses thread parts which serve as retention elements having a shallow slope at the apical (insertion) side and a steep slope on the cervical side. The retention elements function like shark teeth hooking on to surrounding bone tissue. During surgery, the retention elements allow the implant to enter the bony preparation and then hook onto the surrounding bone tissue. This latter feature prevents the implant from being removed by pulling the implant straight out of the bone tissue.

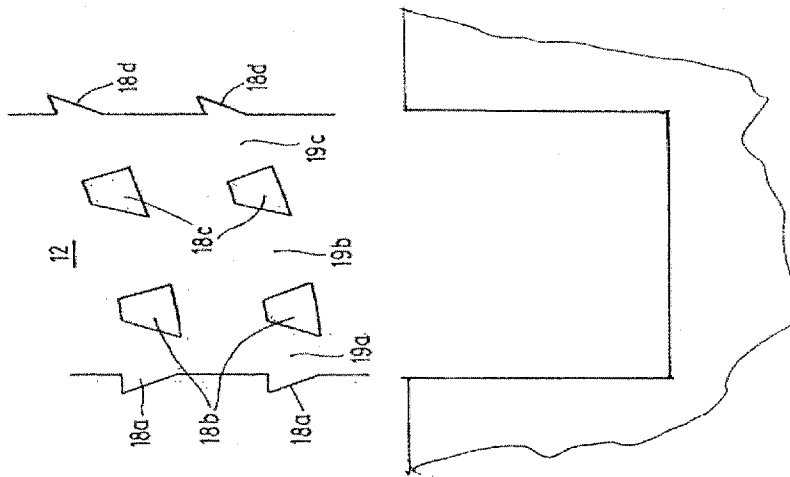
The claims are all rejected based primarily on Münch U.S. Patent No. 4,468,200. Particularly, claims 1, 3, 8-10, 12 and 14 are rejected as anticipated.

Independent claim 1 specifies, in pertinent part, an intra-osseous implant for placement in bone of a human or animal body comprising a part having an apical side and a cervical side. The part is provided on its circumferential surface with an interrupted screw thread. Multiple interrupted screw thread parts serve as retention elements allowing the placement of the implant in the longitudinal direction into the bone tissue but preventing the removal of the implant in the opposite longitudinal direction out of the bone. The retention elements are provided with a profile exhibiting a shallow slope toward the apical side and a steep slope on the cervical side.

Münch does not disclose or suggest retention elements allowing placement of an implant in a longitudinal direction into the bone tissue while preventing removal of the implant in the opposite longitudinal direction out of the bone. More particularly, Münch does not disclose that

thread parts are provided with a profile exhibiting a shallow slope toward the apical side and a steep slope on the cervical side.

Below is an image showing Fig. 3b of the present application with an added insertion opening in bone tissue to the right. The cervical side is to the left and the apical side to the right.

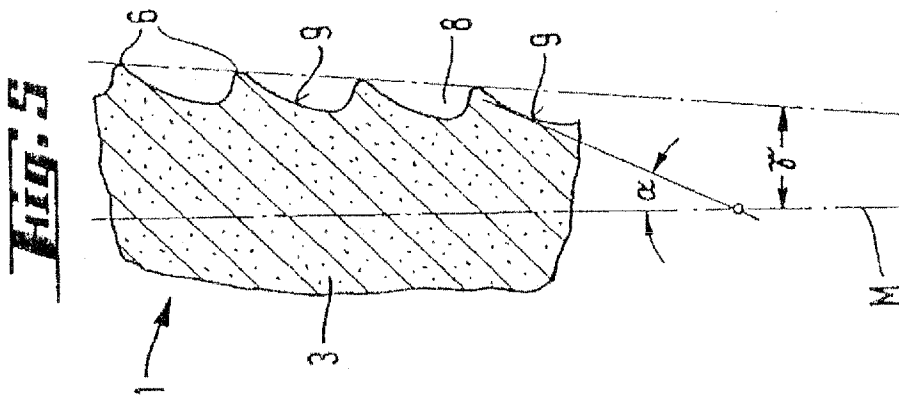


**Applicant Fig. 3(b) with bone**

These retention elements 18a, b, c and d, exhibit the claimed shallow slope toward the apical side (the right side) and a steep slope on the cervical side. These retention elements allow the placement of the implant in a longitudinal direction (from left to right) but prevent the removal of the implant in the opposite longitudinal direction out of the bone (from right to left).

Particularly, the retention elements hook into the side walls of the preparation opening to prevent removal in the longitudinal direction (from right to left).

Below is an image showing Fig. 5 of Münch. Again, the cervical side is to the left and the apical side to the right.



**Münch Fig. 5**

The threads of Münch are intended to be threaded into and out of the bone tissue. There is no disclosure of allowing the placement of the implant in a longitudinal direction (from left to right) but preventing the removal of the implant in the opposite longitudinal direction out of the bone (from right to left). To the extent one could argue, as done by the examiner, that the threads are “capable” of allowing placement in the longitudinal direction (from left to right), one would also have to accept that the threads would likewise allow removal in the opposite longitudinal direction (from right to left). This is due to the fact that the slope on the cervical side is similar to the slope on the apical side.

The final rejection focuses on the claim limitation to a screw thread having multiple grooves which interrupt the screw thread. The rejection essentially ignores the claim limitations that the multiple interrupted screw thread parts serve as retention elements. The retention

elements allow the placement of the implant in a longitudinal direction but prevent the removal of the implant in the opposite longitudinal direction out of the bone. Münch does not disclose or suggest any such retention elements. The action mentions that Münch is also inserted in the longitudinal direction. While there is a longitudinal component to Münch's threading action, the placement is actually obtained by rotational movement. The examiner's comments ignore the claim limitation to preventing removal in the opposite longitudinal direction. If the examiner is arguing that Münch teaches that placement by threading is in a longitudinal direction, then Münch does not teach that it "prevents" removal in the opposite longitudinal direction, which would likewise also be by threading (because only threading out is opposite threading in). To the contrary, Münch allows removal by threading.

It is clearly evident that Münch in Figs. 1 and 2 teaches that most of the intra-osseous part of the implant is covered with a screw thread. A groove 15 functions as a discharge channel. However, the grooves are rather small and are insufficient to establish interrupted screw thread parts which serve as retention elements, as set forth in claim 1.

Claim 1 specifies that the implant can be placed in the bone essentially by a pushing action, or in the wordings of the invention "for the placement of the implant in longitudinal direction". If such a pushing action were used with Münch, the implant would cause substantial friction with the bone tissue because of the large portion of the screw thread on the surface of the implant. It is therefore more likely that the bone tissue will be damaged during pushing or hammering of Münch's implant.

Implanting Münch's device in a longitudinal direction would be impractical. In order to prevent damage and unstable placement when implanting the Münch device, the bore or prepared hole in the bone tissue would need to be almost the size of the profile of the screw thread instead of the implant itself. This however results in an unstable implant placement because of the small contact surface of the implant with the bore/prepared hole in the bone tissue. It is therefore inferred that the implant disclosed in Münch must be screwed in instead of pushed in. Indeed, the disclosure in Münch discusses only a threading action.

Claim 1 of the present application states that "the multiple interrupted screw thread parts serve as retention elements allowing the placement of the implant in longitudinal direction". The screw thread of Münch does not make it possible to insert the implant in this manner, namely pushing the implant in the longitudinal direction. Independent claim 1 is therefore non-anticipated by Münch.

The action states that Münch discloses "multiple interrupted screw thread parts serving as retention elements capable of allowing the placement of the implant in a longitudinal direction". However, there is no discussion as how there is any such capability. As is readily apparent, such a pushing action with Münch would damage bone tissue.

The screw thread parts of the present invention are relatively small compared with the groove/intra-osseous part of the implant surface and therefore have a different effect. This corresponds to the characterization of the screw thread parts as retention elements as discussed above. The relative small surface results in relatively small friction upon pushing the implant into



the bone tissue. The screw thread parts are shaped as shark teeth and dig into the surrounding bone tissue. The implant is therefore stable and anchored directly upon placement.

The implant disclosed in Münch gains stability and becomes anchored with the bone tissue when new regenerated tissue is grown over the annular notches, as discussed at column 3, lines 43-44. The screw thread parts of the Münch implant can therefore not be seen as “retention elements allowing the placement of the implant in longitudinal direction into the bone tissue” as set forth in claim 1 herein.

The shape of the Münch implants are like a conical helix, see column 2, lines 8-9. With the cylindrical bore in the bone tissue the shape of the Münch implant will result only in a small portion of the implant to be in close contact with the bone tissue. This results in a less stable and less anchored implant. If the bore in a tissue is the same conical shape of the implant the implant is restricted in depth replacement. There is no freedom to adjust the implant to give it to the correct height/depth without losing stability.

Summarizing, Münch does not disclose or suggest an implant using retention elements which allow placement of an implant in a longitudinal direction but prevent removal of the implant in the opposite longitudinal direction out of the bone. Particularly, the profile of the threaded elements in Münch allows both insertion and removal by threading, and prevents both insertion and removal by pushing or pulling or the like. Reversal of the rejection and allowance of the application are requested.

Claims 3, 8-10, 12 and 14 depend from claim 1 and are allowable for the same reasons therefor.

**Claims 4, 5 and 15 Are Not Obvious Over Münch In View Of Alvaro.**

Claims 4 and 5.

Claim 4 depends on claim 1 and specifies that the width of the groove varies in the direction of the apical side of the intra-osseous part. Claim 5 depends from claim 1 and specifies that the depth of the groove varies in the direction of the apical side of the intra-osseous part and more in particular becomes smaller.

Alvaro does not disclose the deficiencies noted above with respect to Münch. Therefore, no combination of Münch and Alvaro results in the invention of either claim 4 or claim 5.

Claim 15.

Claim 15 depends on claim 4 and specifies that the width of the groove widens in the direction of the apical side of the intra-osseous part. Claim 15 is allowable for the same reasons discussed above relative to claim 4. Moreover, none of the references disclose or suggest a groove widening in the direction of the apical side of the intra-osseous part. To the contrary, in Alvaro the groove narrows. Claim 15 is not obvious for this reason as well.

**Claim 6 Is Not Obvious Over Münch In View of Misch.**

Claim 6 depends on claim 1 and specifies that the height of the screw thread varies in the direction of the apical side of the intra-osseous part and more in particular becomes smaller.

Misch does not disclose the deficiencies noted above with respect to Münch. Therefore, no combination of the references results in the claimed invention. Moreover, the action incorrectly describes the teachings of Misch. The action states that in 5 the height of the screw head varies. However, it is apparent that the thread portions in Fig. 5 of Misch are all of equal height. Claim 6 is not obvious for this reason as well.

**Claims 11, 16 and 17 Are Not Obvious Over Münch In View Of Kanomi.**

Claim 11.

Claim 11 depends on claim 1 and specifies that the intra-osseous part has a polygonal cross-section.

Kanomi does not disclose the deficiencies noted above with respect to Münch. Moreover, the combination is improper. Kanomi is not describing any particular figure in the referenced passage at col. 7, lines 47-49. In particular, it is not discussing the cross-section of a threadable member. Thus, one skilled in the art would not consider that Kanomi would suggest that the threaded element of Münch could be made of polygonal cross-section. Claim 11 is not obvious for this reason as well.

Claim 16.

Claim 16 depends on claim 1 and specifies that the intra-osseous part has a hexagonal cross-section.

Kanomi does not disclose the deficiencies noted above with respect to Münch. Moreover, the combination is improper. Kanomi is not describing any particular figure in the referenced passage at col. 7, lines 47-49. In particular, it is not discussing the cross-section of a threadable member. Thus, one skilled in the art would not consider that Kanomi would suggest that the threaded element of Münch could be made of hexagonal cross-section. Claim 16 is not obvious for this reason as well.

Claim 17.

Claim 17 depends on claim 1 and specifies that the intra-osseous part has an octagonal cross-section.

Kanomi does not disclose the deficiencies noted above with respect to Münch. Moreover, the combination is improper. Kanomi is not describing any particular figure in the referenced passage at col. 7, lines 47-49. In particular, it is not discussing the cross-section of a threadable member. Thus, one skilled in the art would not consider that Kanomi would suggest that the threaded element of Münch could be made of octagonal cross-section. Claim 17 is not obvious for this reason as well.

**Claim 13 Is Not Obvious Over Münch In View Of Lonca.**

Claim 13 depends on claim 1 and specifies that the support part is positioned under an angle on the intra-osseous part with respect to the direction of the implant. Lonca does not disclose the deficiencies noted above with respect to Münch. Therefore, no combination of the references result in the claimed invention. Thus, claim 13 is not obvious.

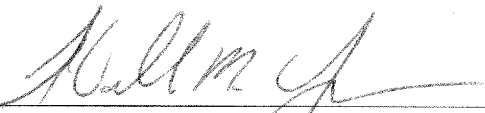
**SUMMARY**

Münch does not disclose an implant including retention elements as characterized in the claims herein. Therefore, the claimed invention is not anticipated or obvious over Münch, alone or in combination with any of the secondary references.

Reversal of the rejections is requested.

Respectfully submitted,

Dated: May 23, 2011

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**CLAIMS APPENDIX**

1. An intra-osseous implant for placement in bone of a human or animal body comprising at least one intra-osseous part intended for placement in bone tissue having an apical side and a cervical side and composed of a body friendly material, which part is provided on its circumferential surface with a screw thread running in the direction of and ending at the apical end; and a support part present at said cervical side of said at least one intra-osseous part intended for supporting a prosthetic element, characterized in that the intra-osseous part is provided with multiple grooves extending in longitudinal direction and over the entire length of the intra-osseous part, interrupting the screw thread into multiple interrupted screw thread parts, said multiple interrupted screw thread parts serving as retention elements allowing the placement of the implant in longitudinal direction into said bone tissue but preventing the removal of the implant in opposite longitudinal direction out of said bone, said retention elements being provided with a profile exhibiting a shallow slope towards the apical side and a steep slope on the cervical side.

2. (Canceled)

3. An intra-osseous implant according to claim 1, characterized in that the depth of the groove is smaller, equal or greater than the height of the screw thread.

4. An intra-osseous implant according to claim 1, characterized in that the width of the groove varies in the direction of the apical side of said intra-osseous part.
5. An intra-osseous implant according to claim 1, characterized in that the depth of the groove varies in the direction of the apical side of said intra-osseous part and more in particular becomes smaller.
6. An intra-osseous implant according to claim 1, characterized in that the height of the screw thread varies in the direction of the apical side of said intra-osseous part and more in particular becomes smaller.
7. (Canceled)
8. An intra-osseous implant according to claim 1, characterized in that the grooves are present in an equidistant manner in the circumferential surface.
9. An intra-osseous implant according to claim 1, characterized in that the intra-osseous part has a cylindrical cross section.

10. An intra-osseous implant according to claim 1, characterized in that the intra-osseous part has a near cylindrical cross section.
11. An intra-osseous implant according to claim 1, characterized in that the intra-osseous part has a polygonal cross section.
12. An intra-osseous implant according to claim 1, characterized in that the intra-osseous part becomes smaller in the apical direction.
13. An intra-osseous implant according to claim 1, characterized in that the support part is positioned under an angle on said intra-osseous part with respect to the direction of implant.
14. An intra-osseous implant according to claim 1, characterized in that the implant is a dental implant, wherein said support part is provided with at least one bevel on its circumferential edge.
15. An intra-osseous implant according to claim 4, characterized in that the width of the groove widens in the direction of the apical side of said intra-osseous part.
16. An intra-osseous implant according to claim 11, characterized in that the intra-osseous part has a hexagonal cross section.



17. An intra-osseous implant according to claim 11, characterized in that the intra-osseous part has an octagonal cross section.

**EVIDENCE APPENDIX**

None.

**RELATED PROCEEDINGS APPENDIX**

None.